

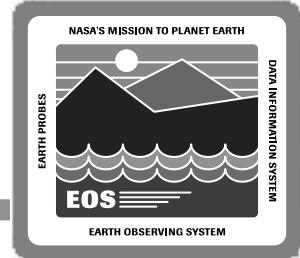
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# FOS Dry-Run Test Status

## Andy Miller

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7 November 1996



# Dry-Run Test Objectives

## Execute Release A Test Case Dry-Runs

- Verify Level 4, RBR & IRD Requirements
- Verify NCRs ( fixed post TRR )
- Refine Test Procedures
- Familiarize Test team with FOS Release A System

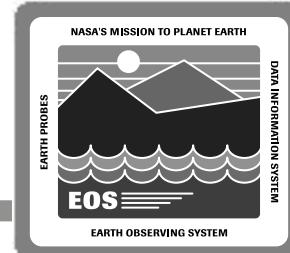
## Document Results of Dry-Run Test Conduct

- Test Logs
- NCRs (newly Opened & Closed/Verified)
- Requirements Check-off matrix

## Refine the Test Process at the EOC

- Daily Test Status & Schedules
- Identify Concurrent Testing to Mitigate Schedule Concerns
- Test Repetitiveness

# Release A Test Timeline



## Planning & Scheduling

### Thread Tests:

- Activity Definer Tool
- BAP Definer Tool
- Genl. Scheduler & Timeline
- ASTER I/F Filter
- ATC Load Gen.
- Microprocessor Load Gen.
- Table Load Val. & Gen.

C

## Real-time Thread Tests:

- Logical String Config
- NCC GCMR Processing
- Off-line Archive to SDPS
- CMD Authorization
- Ground. Script Control & Manipulation
- Manual Command Processing
- Telemetry Decommutation
- Telemetry EU Conversion
- Telemetry Limits Processing
- Telemetry Graph/Spreadsheet Display
- Telemetry Archive

C

## Analysis Thread Tests:

- Tlm. History Request & Dataset Generation
- User Specified Statistics & Dataset Generation
- Analysis Request Management

C

## User Interface & Event Msg. Processing Thread Tests

Event Message Display

B

Request Preplanned Command PROC

Control Window Manipulation

Real-time Alphanumeric Page Display

Screen Management

HELP Tool

Time Selector Tool

PROC Control

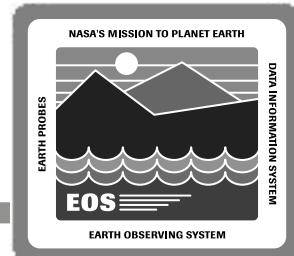
PROC Builder

ECL Directives

A

## Data Base Thread Tests:

Data Base Ingest, Format, Validation, and ODF Generation



# FOS Release A Test Suite

<b>RCM 2000</b>	<b>RCM 2010</b>	<b>RCM 2020</b>	<b>TLM 2030</b>
	<b>TLM 2000</b>		<b>TLM 2040</b>
	<b>TLM 2010</b>		<b>TLM 2040</b>
	<b>TLM 2020</b>		<b>TLM 2050</b>
<b>EVT 2000</b>			<b>CONF 2000</b>
<b>EVT 2020</b>			
<b>FUI 2000</b>		<b>SCH 2040</b>	
<b>FUI 2005</b>		<b>SCH 2050</b>	
<b>DMS 2000</b>	<b>HRD 2000</b>	<b>ANA 2000</b>	
		<b>ANA 2020</b>	
<b>FUI 2060</b>		<b>CMD 2005</b>	
<b>FUI 2010</b>		<b>CMD 2010</b>	
<b>FUI 2030</b>		<b>FUI 2080</b>	
<b>CMD 2000</b>	<b>FUI 2040</b>	<b>E/to/E 1-2</b>	<b>E/to/E 3</b>
	<b>FUI 2050</b>		

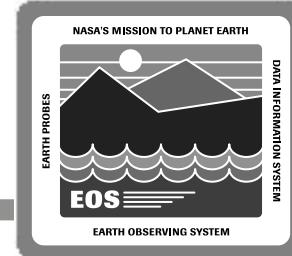
## Legend:

- Non-Critical
- Critical

Test Case Titles Grouped by FOS Subsystems as Follows:

ANA= Analysis Tests  
 CMD= R/T command/CMS Tests  
 DMS= Data Management Tests  
 EVT= Events Tests  
 FUI= User Interface Tests  
 RCM= R/T Contact Mgmt Tests  
 SCH= Planning & Sched. Tests  
 TLM= R/T Telemetry Tests  
 EtoE= End to End Tests  
 REG= Post-Patch Regression

# Release A Critical Test Identification

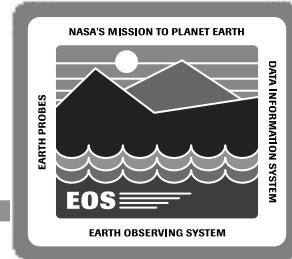


## Benefits of Release A Critical Test Identification

- Allows for Early Identification of Problems Which May Affect Other Subsystems
- Successful Completion of These Tests Provide a Logical Point to Begin Concurrent Test Activity

## Criteria for Release A Critical Tests

- Mimics Release Plan & Build/Thread Methodology
- Tests exercise functionality in multiple Subsystems
- Critical tests cannot be executed concurrently with other Release A Tests

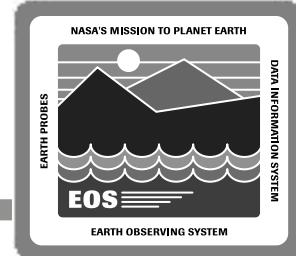


# Release A Critical Tests

## Critical Tests for Release A:

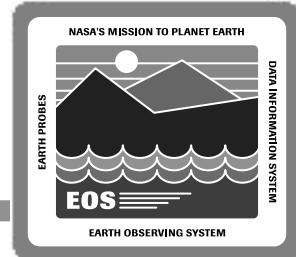
- DMS 2000 - DB Gen/Validation - Prereq. for All Remaining Tests
- RCM 2000 - Logical String config; Prereq. for TLM/CMD Tests
- EVT 2000 - Evt. Message Dsp.- Prereq. for All Remaining Tests
- FUI 2000 - Control Window- Prereq. for All Remaining Tests
- FUI 2005 - ECL Directives - Prereq. for All Remaining Tests
- FUI 2060 - Alpha. Page Display - Prereq. for RCM/TLM tests
- CMD 2000 - Manual Command Processing
- TLM 2000 - Decom; Prereq. for EU Conversions
- TLM 2010 - Decom-Housekeeping Telemetry
- TLM 2020 - EU Conversion; Prereq. for Limit Checking
- SCH 2000 - Activity Definer- Prereq. for Remaining SCH Tests
- SCH 2010 - BAP Definer Tool- Prereq. for Remaining SCH Tests

# Multiple Test Pass Philosophy



**Each Release A Test was executed Multiple times**

- Demonstrates Repeatability of tests
- Increases test familiarization by Test team
- Subsequent passes highlight maturity of Release A functionality
- Facilitates NCR validation in subsequent passes
- Emphasizes regression testing methodology

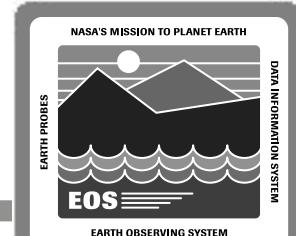


# Multiple Test Pass Results

<b>TEST <u>PASS</u></b>	<b>TESTs <u>Completed</u></b>	<b>TESTs <u>Passed</u></b>	<b>TESTs Passed (partial)</b>	<b>TESTs <u>Failed</u></b>	<b>TESTs <u>NOT RUN</u></b>
1	26 ( 59%)	2 (5%)	21 (48%)	3 (7%)	18 (41%)
2	40 ( 91%)	12 (27%)	28 (64%)	0 (0%)	5 (11%)
3	44 ( 98%)	30 (67%)	10 (22%)	4 (9%)	1 (2%)

**\*\* (Total tests for Pass 1 = 44      Pass 2 & 3 = 45)**

# Rel. A Dry Run Test Status (Pass 1)

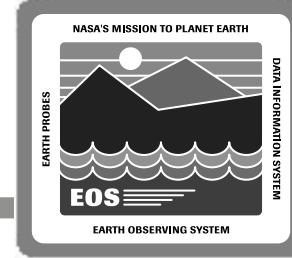


	RCM 2000	RCM 2010	RCM 2020	TLM 2030	Legend:	
		TLM 2000	TLM 2022	TLM 2040	<span style="background-color: #808080; display: inline-block; width: 15px; height: 15px;"></span> All test success criteria met.	
		TLM 2010	TLM 2025	TLM 2050	<span style="background-color: #FFFF00; display: inline-block; width: 15px; height: 15px;"></span> Most functions verified in the test passed	
		TLM 2020	TLM 2027	TLM 2080	<span style="background-color: #FF0000; display: inline-block; width: 15px; height: 15px;"></span> Test Failed; functions inoperable; inhibit testing major functional “pieces”.	
	EVT 2000	SCH 2040	SCH 2160	SCH 2200	<span style="background-color: #FFFFFF; display: inline-block; width: 15px; height: 15px;"></span> Test not attempted - Functional dependencies not available	
	EVT 2020	SCH 2050	ANA 2000	ANA 2070		
	FUI 2000	ANA 2020	SCH 2160	SCH 2200		
	FUI 2005	CMD 2005	CMD 2015	CMD 2017		
DMS 2000	HRD 2000	SCH 2000	FUI 2080	E/to/E 1-2		
		SCH 2010				
		SCH 2020				
		SCH 2030				
	FUI 2060	CMD 2010				
	FUI 2010	FUI 2040				
	FUI 2030	FUI 2050				
	CMD 2000			E/to/E 3		

## Test Naming Convention

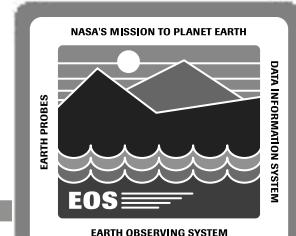
ANA= Analysis Tests  
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 RCM= R/T Contact Mgmt Tests  
 SCH= Planning & Sched. Tests  
 TLM= R/T Telemetry Tests  
 EtoE= End to End Tests  
 HRD Hardware Tests

# Rel. A Dry Run Test Status (Pass 1)



- Established consistent configuration at mini-EOC and EOC
- Stabilized EOC System configuration (and enforced configuration control)
- Completed 26/44 tests (60%)
- Verified 15 NCRs
- Identified NCRs resulting in the postponement of remaining tests
- Established Goals for Pass 2 testing -
  - Execute Confidence test to ensure previously provided functionality not affected by new software
  - complete remaining thread tests, starting with “critical” areas first (I.e. real-time command, real-time command, alphanumeric display...)
  - Re-test ALL Release A Tests
  - Verify fixed NCRs

# Rel. A Dry Run Test Status (Pass 2)

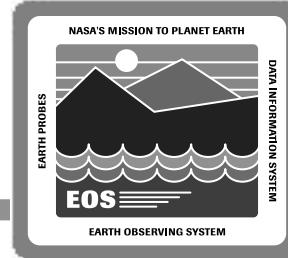


	RCM 2000	RCM 2010	RCM 2020	TLM 2030	Legend:	
CON1000A					All test success criteria met.	
	EVT 2000	TLM 2000	TLM 2022	TLM 2040	Most functions verified in the test passed	
	EVT 2020	TLM 2010	TLM 2025	TLM 2050		
		TLM 2020	TLM 2027	TLM 2080		
DMS 2000	FUI 2000	SCH 2040	SCH 2160	SCH 2200		
	FUI 2005	SCH 2050				
	HRD 2000	ANA 2000	ANA 2070			
	FUI 2060	ANA 2020				
	FUI 2010	CMD 2005	CMD 2015			
	FUI 2030	CMD 2010	CMD 2017			
	CMD 2000	FUI 2080				
		FUI 2040				
		FUI 2050	E/to/E 1-2	E/to/E 3		

## Test Naming Convention

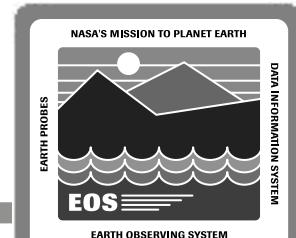
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 TLM= R/T Telemetry Tests  
 EtoE= End to End Tests  
 HRD Hardware Tests

# Rel. A Dry Run Test Status (Pass 2)



- Completed 40 out of 45 tests (91%)
- 100% of executed tests fully or partially passed
- Demonstrated effectiveness of confidence test - CON1000A
- Verified 75 NCRs
- Identified new NCRs
- Goals for Pass 3 -
  - Continue to execute Confidence Test to Ensure existing functionality not affected by new software
  - Complete all thread tests and end to end tests while verifying associated software fixes
  - Complete requirements traceability documentation
  - Enter all new NCRs into DDTs

# Rel. A Dry Run Test Status (Pass 3)

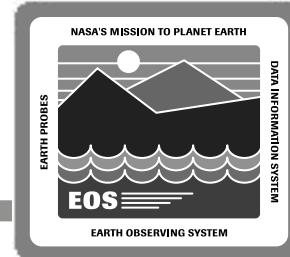


	RCM 2000	RCM 2010	RCM 2020	TLM 2030	Legend:	
CON1000A					All test success criteria met.	
	EVT 2000	TLM 2000	TLM 2022	TLM 2040	Most functions verified in the test passed	
	EVT 2020	TLM 2010	TLM 2025	TLM 2050		
		TLM 2020	TLM 2027	TLM 2080		
DMS 2000	FUI 2000	SCH 2040	SCH 2160	SCH 2200		
	FUI 2005	SCH 2050				
	HRD 2000	ANA 2000	ANA 2070			
	FUI 2060	ANA 2020				
	FUI 2010	CMD 2005	CMD 2015			
	FUI 2030	CMD 2010	CMD 2017			
	CMD 2000	FUI 2080				
		E/to/E 1-2				
			E/to/E 3			

## Test Naming Convention

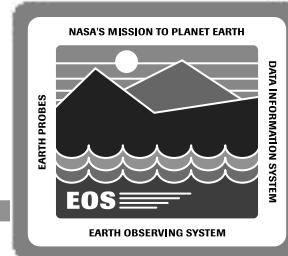
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 EtoE= End to End Tests  
 HRD Hardware Tests

# Rel. A Dry Run Test Status (Pass 3)

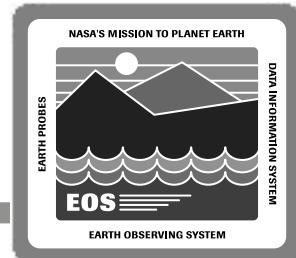


- Completed 44 out of 45 tests (91%)
- 67% of executed tests fully or partially passed
- Verified 91 NCRs
- Identified 112 New NCRs
  - Representative of more detailed level of testing
  - # of severity level 1 NCRs reduced

# RbR Test Status

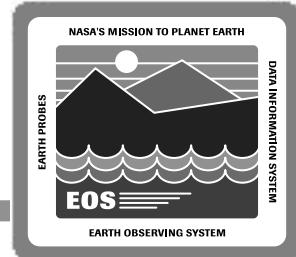


Reqt Type	Pass	Partial	Fail	Un-Verified	Total
AM1	2	2	0	4	8
ASTER	0	2	0	1	3
EOC	22	60	0	4	86
EOSD	18	4	0	11	33
FOS	3	1	0	0	4
ICC	27	45	1	1	74
NI	4	1	0	3	8
<b>Totals</b>	<b>76</b>	<b>115</b>	<b>1</b>	<b>24</b>	<b>216</b>
	35%	53%	1%	11%	



# Level 4 Test Status

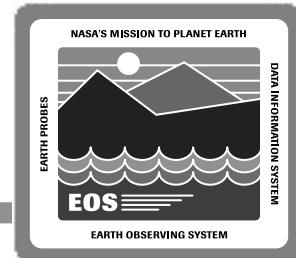
Subsystem	Pass	Partial	Fail	Un-Verified	Totals
ANA	17	5	8	1	31
CMD	18	6	7	6	37
CMS	28	2	10	0	40
DMS	20	5	3	2	30
FOS	7	0	0	2	9
FUI	124	16	13	6	159
HRD	53	5	3	2	63
PAS	9	14	0	1	24
RMS	13	1	0	0	14
TLM	33	3	12	5	53
<b>Totals</b>	<b>322</b>	<b>57</b>	<b>56</b>	<b>25</b>	<b>460</b>
	70%	12%	12%	6%	



# Opened NCRs by Dry-Run Pass

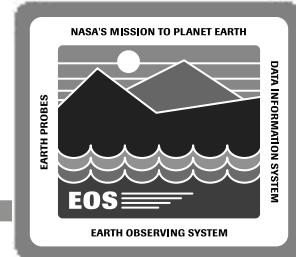
Severity	At TRR	Pass 1	Pass 2	Pass 3	Totals
1	20	28	7	3	58
2	69	51	18	71	209
3	107	76	14	38	235
<b>Totals</b>	<b>196</b>	<b>155</b>	<b>39</b>	<b>112</b>	<b>502</b>

# Closed NCRs by Dry-Run Pass



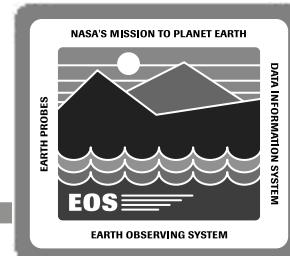
Severity	Pass 1	Pass 2	Pass 3	Totals
1	12	24	17	53
2	12	38	45	95
3	20	44	29	93
<b>Totals</b>	<b>44</b>	<b>106</b>	<b>91</b>	<b>241</b>

# NCR Summary



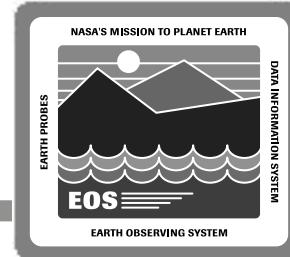
Severity	Reported	Closed	Open
1	60	54	4
2	207	95	114
3	235	92	143
<b>Totals</b>	<b>502</b>	<b>241</b>	<b>261</b>

# Post-Release A NCR Work-off Plan



Severity	ECT #1	IST Delivery	Release B	Totals
1	0	0	0	0
2	4	5	39	48
3	1	7	86	94
<b>Totals</b>	<b>5</b>	<b>12</b>	<b>125</b>	<b>142</b>

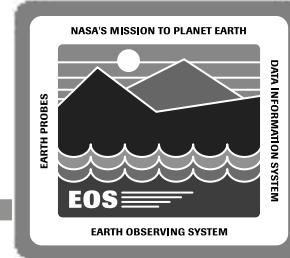
# Dry-Run Test Status (Pass 3)



## Issues

- **Command**
  - Command Procedures
  - Submnemonics
  - Byte Swap
  - Command Event Messages
- User-Defined Statistics
- Graphs
- Table Load Import
- Non-Valley Forge Telemetry Definitions

# Open Severity 1 NCRs



## Failed Patch 5/6 Verification

- ECSed03872
  - Command ODF hex to decimal conversion not being done properly
- ECSed03987
  - Submnemonics not converting ASCII to binary

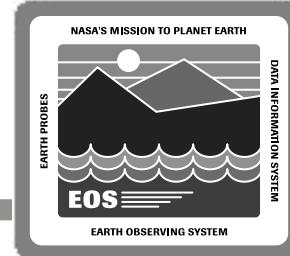
## Unable to Verify

- ECSed03580
  - No SDPS connectivity

## New since 11/2/96

- ECSed04434
  - Could not generate a stats request; data file comes back empty

# NCR Work-off Plan



## AT Patch

- Command
  - Command Procedures
  - Submnemonics
  - Byte Swap
  - Command Event Messages
- User-Defined Statistics